

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 11-K

- ☒ ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2006

or

- ☐ TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 1-9894

- A. Full title of the plan and address of the plan, if different from that of the issuer named below:

ALLIANT ENERGY CORPORATION 401(k) SAVINGS PLAN

- B. Name of issuer of the securities held pursuant to the plan and the address of its principal
executive office:

ALLIANT ENERGY CORPORATION
4902 North Biltmore Lane
Madison, Wisconsin 53718

REQUIRED INFORMATION

The following financial statements and schedules of the Alliant Energy Corporation 401(k) Savings Plan, prepared in accordance with the financial reporting requirements of the Employee Retirement Income Security Act of 1974, as amended, are filed herewith.

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FINANCIAL STATEMENTS AS OF DECEMBER 31, 2006 AND 2005

AND FOR THE YEAR ENDED DECEMBER 31, 2006,

SUPPLEMENTAL SCHEDULES AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2006, AND

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

TABLE OF CONTENTS

	<u>Page No.</u>
REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	4
FINANCIAL STATEMENTS	
Statements of Net Assets Available for Benefits as of December 31, 2006 and 2005	5
Statement of Changes in Net Assets Available for Benefits for the Year Ended December 31, 2006	6
NOTES TO FINANCIAL STATEMENTS	7-12
SUPPLEMENTAL SCHEDULES	
Form 5500, Schedule H, Part IV, line 4i - Schedule of Assets (Held at End of Year) as of December 31, 2006	13-17
Form 5500, Schedule H, Part IV, line 4i - Schedule of Assets (Acquired and Disposed of Within Year) for the Year Ended December 31, 2006	18
Form 5500, Schedule H, Part IV, line 4j - Schedule of Reportable Transactions for the Year Ended December 31, 2006	19
SIGNATURES	20
EXHIBIT INDEX	21
Consent of Independent Registered Public Accounting Firm	22

Report of Independent Registered Public Accounting Firm

To the Total Compensation Committee and Participants of the Alliant Energy Corporation 401(k) Savings Plan:

We have audited the accompanying statements of net assets available for benefits of Alliant Energy Corporation 401(k) Savings Plan (the "Plan") as of December 31, 2006 and 2005, and the related statement of changes in net assets available for benefits for the year ended December 31, 2006. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2006 and 2005, and the changes in net assets available for benefits for the year ended December 31, 2006 in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedules of (1) assets (held at end of year) as of December 31, 2006, (2) assets (acquired and disposed of within year) for the year ended December 31, 2006, and (3) reportable transactions for the year ended December 31, 2006, are presented for the purpose of additional analysis and are not a required part of the basic financial statements, but are supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. These schedules are the responsibility of the Plan's management. Such schedules have been subjected to the auditing procedures applied in our audit of the basic 2006 financial statements and, in our opinion, are fairly stated in all material respects when considered in relation to the basic financial statements taken as a whole.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
June 22, 2007

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS

	December 31,	
	<u>2006</u>	<u>2005</u>
Investment income receivable	\$220,277	\$1,916,893
Contributions receivable	--	1,256,949
Total receivables	<u>220,277</u>	<u>3,173,842</u>
Investments, other than participant promissory notes (Refer to Notes 7 and 8)	577,699,020	486,711,444
Participant promissory notes	<u>9,305,638</u>	<u>8,837,772</u>
Total investments	<u>587,004,658</u>	<u>495,549,216</u>
Net assets available for benefits at fair value	587,224,935	498,723,058
Adjustments from fair value to contract value for fully benefit-responsive investment contracts (Refer to Note 2)	<u>435,698</u>	<u>518,125</u>
Net assets available for benefits	<u>\$587,660,633</u>	<u>\$499,241,183</u>

The accompanying Notes to Financial Statements are an integral part of these statements.

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

For the Year Ended December 31, 2006

Net assets available for benefits - beginning of year	\$499,241,183
Contributions:	
Cash contributions from employees	26,431,405
Employer contributions:	
Cash for purchase of Alliant Energy Corporation common stock	7,562,464
Cash	535,990
Rollovers from other qualified plans	397,501
Investment income:	
Net appreciation in fair value of investments (Refer to Note 7)	64,838,281
Interest and dividends	26,247,210
Distributions to participants	<u>(37,593,401)</u>
Net increase	<u>88,419,450</u>
Net assets available for benefits - end of year	<u><u>\$587,660,633</u></u>

The accompanying Notes to Financial Statements are an integral part of this statement.

ALLIANT ENERGY CORPORATION
401(k) SAVINGS PLAN

NOTES TO FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2006

Note 1. Description of the Plan

The Alliant Energy Corporation 401(k) Savings Plan (the Plan) is a qualified defined contribution plan under Section 401(k) of the Internal Revenue Code (the Code), as amended, and meets the applicable requirements of the Employee Retirement Income Security Act of 1974, as amended (ERISA). The following brief description of the Plan is provided for general information purposes only. More complete information regarding the Plan is provided in the plan document and summary plan description, which have been made available to all eligible Plan participants (participants). The Plan is administered by the Total Compensation Committee (the Committee) and the Plan sponsor is Alliant Energy Corporate Services, Inc. (a direct subsidiary of Alliant Energy Corporation). The Committee reserves the right to terminate, amend or modify the Plan if future conditions warrant such action.

Any regular employee of Alliant Energy Corporation and its participating subsidiaries (the Company) age 18 and over may participate in the Plan. Regular full-time employees and regular part-time employees customarily scheduled to work at least half-time may participate immediately following 30 days of service. Part-time employees customarily scheduled to work less than half-time may participate after 12 months of service during which he or she has earned at least 1,000 paid hours.

An Employee Stock Ownership Plan (ESOP) is in place within the Plan. Under these provisions, participants have the option to elect to receive cash for any dividends paid on Company common stock within the Plan or to have the dividends reinvested in additional shares based on the current market price. Also, the Company is eligible for the dividend deduction provisions of Section 404(k) of the Code for Company common stock held in the ESOP.

Effective Jan. 1, 2006, the Company made changes to the Plan for newly hired non-bargaining employees and all Alliant Energy Resources, Inc. parent company (Resources) and Cedar Rapids and Iowa City Railway Company (CRANDIC) employees. For all other non-bargaining employees, the following changes will go into effect on Aug. 1, 2008. The changes include the Company providing matching contributions of \$0.50 for each \$1 contributed by the participant up to the first 8% of each respective participant's eligible compensation. In addition, the Company provides a contribution into each active employee's 401(k) account each pay period based on a percentage of base pay as follows:

<u>Age plus Years of Service</u>	<u>Company Contribution</u>
≤ 49	4%
50 - 69	5%
70+	6%

For all other non-bargaining and bargaining employees, the Company provides matching contributions of \$0.50 for each \$1 contributed by the participant up to the first 6% of each respective participant's eligible compensation.

Employee contribution limits for 2006 were as follows:

Eligible employee annual contribution limit as a percentage of compensation	50%
Maximum annual contribution limit*	\$15,000

*Participants who were at least age 50 by Dec. 31, 2006 were eligible to make additional catch-up contributions of up to \$5,000 in 2006. These additional catch-up contributions were not eligible for any Company match.

Company contributions are invested in the Alliant Energy Corporation Common Stock Fund, except for contributions for newly hired non-bargaining employees and all Resources and CRANDIC employees beginning Jan. 1, 2006. These exceptions are invested at each participant's discretion. Effective Oct. 2, 2006, the Plan enhanced its existing diversification provisions by allowing participants with at least three years of service to transfer their Company matching contributions invested in the Alliant Energy Corporation Company Stock Fund to any other investment fund. Previously, Company matching contributions invested in the Alliant Energy Corporation Company Stock Fund could not be transferred to any other investment fund, except for certain participants during the 30-day period immediately prior to retirement and participants age 55 with 10 years of service were eligible to diversify up to 100% of their ESOP account to one or more of the investment options.

During 2005, Resources and CRANDIC employees were eligible for a "discretionary" Company contribution of \$0.50 for every \$1 contributed by the participant up to a maximum of the first 6% of each respective participant's eligible compensation in addition to the "basic" Company contribution. The "discretionary" contribution for both Resources and CRANDIC employees was based on achieving specified goals and was typically determined and paid during the first quarter of the following year. The "discretionary" Company contributions for 2005 were \$198,808. Effective Jan. 1, 2006 this "discretionary" contribution is no longer available.

An "additional" Company contribution is contributed to the accounts of active participants, as of the last day of the Plan year, who contributed at least 6% of compensation during the Plan year and did not receive a Company matching contribution equal to 3% of compensation or for those eligible for a matching contribution equal to 4% of compensation who contributed 8% of compensation during the Plan year. The amount of the "additional" Company contribution is the difference between 3% of compensation or 4% of compensation for certain employees during the Plan year and the amount of Company matching contributions previously received during the Plan year.

Participants are immediately vested in their respective employee and employer contributions. Participants may subsequently redesignate the distribution of future contributions or transfer existing balances between investment funds on a daily basis, subject to the limits set forth in the Plan.

Contributions under the Plan are held and invested, until distribution, in a Trust Fund maintained by Wachovia Bank, National Association (the Trustee), as successor to Ameriprise Trust Company. On June 1, 2006, Wachovia Bank, National Association acquired Ameriprise Trust Company's recordkeeping business.

The Plan has provisions under which participants who are active employees may take loans up to the lesser of \$50,000 or 50% of their total account balance (a \$1,000 minimum loan amount and a maximum of three loans for each participant also apply). The Committee determines the loan interest rate pursuant to the Plan. Interest rates on participant loans outstanding ranged from 5.0% to 10.5% at both Dec. 31, 2006 and 2005. Principal and interest are repaid bi-weekly through employee payroll deductions.

Note 2. Summary of Significant Accounting Policies

(a) Basis of Accounting - The financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP).

(b) Adoption of New Accounting Guidance - In 2006, the Plan adopted Financial Accounting Standards Board Staff Position, FSP AAG INV-1 and SOP 94-4-1, "Reporting of Fully Benefit-Responsive Contracts Held by Certain Investment Companies Subject to the AICPA Investment Company Guide and Defined-Contribution Health and Welfare and Pension Plans" (FSP) and retrospectively adjusted the statement of net assets available for benefits as of Dec. 31, 2005 to adopt this new accounting standard. As required by the FSP, the statements of net assets available for benefits present investments at fair value as well as an additional line item showing an adjustment of fully benefit-responsive contracts from fair value to contract value. The statement of changes in net assets available for benefits is presented on a contract value basis and was not affected by the adoption of the FSP. The adoption of the FSP did not impact the amount of net assets available for benefits at Dec. 31, 2005.

(c) Valuation of Investments and Income Recognition - The Plan's investments are stated at fair value. All Guaranteed Investment Contracts (GIC's) held by the Plan are fully benefit-responsive. The contract value of all GIC investments was \$48,954,702 and \$47,341,620 at Dec. 31, 2006 and 2005, respectively. The approximate fair value of these investments was \$48,570,228 and \$46,887,620 at Dec. 31, 2006 and 2005, respectively, based on the discounted cash flows valuation method. The weighted average yields for the GIC's based on annualized earnings on Dec. 31, 2006 and 2005, were 5.47% and 5.06%, respectively. The weighted average yields for the GIC's based on the interest rate credited to participants on Dec. 31, 2006 and 2005, were 5.11% and 4.33%, respectively. Participant loans are carried at unpaid principal balances due, which approximates fair value. All other Plan investments are carried at fair value as determined by quoted market prices, except for the RiverSource Trust Income Fund I. The RiverSource Trust Income Fund I is a common collective trust fund, which includes investments in fully benefit-responsive GIC's and is reported at fair value at Dec. 31, 2006 and 2005, as determined by Ameriprise Trust Company. Interest income is accrued when earned. Dividend income is recorded on the ex-dividend date. Investment transactions are recorded on the trade date.

(d) Net Appreciation in Fair Value of Investments - Net realized and unrealized appreciation is recorded in the accompanying statement of changes in net assets available for benefits as "Net appreciation in fair value of investments."

(e) Payment of Benefits - Benefit payments to participants are recorded when paid.

(f) Expenses - Investment management and recordkeeping fees are paid from investment earnings prior to crediting earnings to the individual participant account balances. Most other Plan administrative expenses are absorbed by the Company. Expenses incurred in maintaining Self-Managed Brokerage Accounts are the responsibility of the respective Plan participants.

(g) Use of Estimates - The preparation of financial statements in conformity with GAAP requires the Plan administrator to make estimates and assumptions that affect the reported amounts of net assets available for benefits at the date of the financial statements and the reported amounts of changes in net assets available for benefits during the reporting period. Actual results could differ from those estimates.

(h) Risk and Uncertainties - The Plan invests in various investments, including common investment funds, mutual funds, common stock of the Company and investment contracts. The Plan also offers a Self-Managed Brokerage Account option which allows participants to invest in a wide range of mutual funds. Investments, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investments, it is reasonably possible that changes in the values of certain investments may occur in the near term and that such changes could materially affect the amounts reported in the financial statements.

Note 3. Tax Status

The Internal Revenue Service has determined and informed the Company by a letter dated Aug. 25, 2003, that the Plan and related trust are designed in accordance with the applicable sections of the Code. The Plan has been amended since receiving the determination letter. However, the Committee and the Plan's tax counsel believe that the Plan is designed and is currently being operated in compliance with the applicable requirements of the Code.

Note 4. Plan Termination Provisions

Upon termination of the Plan in its entirety, each participant is entitled to receive, in accordance with the terms of the Plan, the entire balance in their account. The Company has no intention to terminate the Plan.

Note 5. Withdrawals and Distributions

Withdrawals from participants' account balances are allowed when participants who are actively employed reach age 70-1/2 (or age 59-1/2 for certain participants). Withdrawals are also allowed due to special "hardship" circumstances. Distributions from the Plan will be made upon termination of employment (by retirement, death, disability or otherwise) if the participant's account balance is less than \$5,000. If a withdrawing participant's account balance exceeds \$1,000 but is less than \$5,000, and the participant does not make an election to either have the account paid as a direct rollover or as a cash payment, the distribution will be paid as a direct rollover to an individual retirement account established at the Trustee. If a withdrawing participant's account balance exceeds \$5,000, the participant may elect to defer payment until he or she is age 70-1/2. Distributions can be either in the form of a lump sum or substantially equal annual installments. The unpaid portion of all loans made to the participant, including accrued interest, will be deducted from the amount of the participant account to be distributed. Distributions payable to participants at Dec. 31, 2006 and 2005 were \$227,307 and \$59,982, respectively. Distributions payable are not included within net assets available for benefits in the accompanying financial statements, however, they are recorded as liabilities in the Plan's Form 5500 (refer to Note 10).

Note 6. Derivative Financial Instruments

The Plan did not invest in any material derivative financial instruments during 2006 and 2005.

Note 7. Other Investment Information

Investments held which were greater than 5% of the Plan's net assets available for benefits as of Dec. 31 were as follows:

	2006	2005
Alliant Energy Corporation Common Stock* (non-participant directed: \$817,826 (21,654 shares) and \$68,338,101 (2,437,165 shares), respectively) (participant directed: \$137,002,457 (3,627,526 shares) and \$39,089,784 (1,394,072 shares), respectively)	\$137,820,283	\$107,427,885
American Funds Growth Fund of America, 2,716,565 and 2,660,335 shares, respectively	89,293,482	82,097,953
RiverSource Trust Equity Index Fund III*, 1,959,874 and 2,209,051 shares, respectively	78,104,900	76,095,171
Dodge & Cox Stock Fund, 367,953 and 300,943 shares, respectively	56,466,030	41,295,339
American Funds EuroPacific Growth Fund, 913,251 and 741,088 shares, respectively	41,991,279	30,110,419
PIMCO Total Return Fund, 3,024,733 and 2,780,718 shares, respectively	31,396,730	29,197,536

* Represents party known to be a party-in-interest to the Plan.

During 2006, the Plan's investments, including gains and losses on investments acquired and disposed of, as well as held during the year, appreciated (depreciated) in value as follows:

Alliant Energy Corporation Common Stock*	\$36,888,292
RiverSource Trust Equity Index Fund III*	10,957,207
American Funds Growth Fund of America	5,347,150
Dodge & Cox Stock Fund	5,117,418
American Funds EuroPacific Growth Fund	4,212,352
Buffalo Small Cap Fund	1,235,350
State Street Global Advisors S&P Midcap Index Fund	1,220,670
RiverSource Trust Income Fund I*	372,834
RiverSource Trust Bond Index Fund II*	310,870
Evergreen Small Cap Value Fund	178,134
Brown Capital Management Small Company Fund	34,326
Self-Managed Brokerage Accounts	12,756
PIMCO Total Return Fund	(330,310)
Dreyfus Premier Emerging Markets Fund	(718,768)
Net appreciation in fair value of investments	<u>\$64,838,281</u>

* Represents party known to be a party-in-interest to the Plan.

Note 8. Non-Participant Directed Investments

Information about the net assets and the significant components of the changes in net assets relating to the non-participant directed investments was as follows:

	Dec. 31,	
	2006	2005
Net assets:		
Alliant Energy Corporation Common Stock*	\$817,826	\$68,338,101
RiverSource Trust Money Market Fund I*	12,120	987,313
Contributions receivable	--	378,296
Investment income receivable	1,659	5,358
	<u>\$831,605</u>	<u>\$69,709,068</u>
Changes in net assets:	2006	
Employer contributions	\$379,399	
Investment activity:		
Net appreciation in fair value of investments	136,954	
Investment income	16,385	
Plan amendment related to diversification (Note 1)	(69,410,201)	
	<u>(\$68,877,463)</u>	

* Represents party known to be a party-in-interest to the Plan.

Note 9. Related Party Transactions

Certain Plan investments are shares of mutual funds and common trust funds managed by an affiliate of the Trustee and shares of common stock of the Company. As of Dec. 31, 2006 and 2005, the Plan held 3,649,180 and 3,831,237 shares of Alliant Energy Corporation common stock with a cost basis of \$90,603,322 and \$94,376,693, respectively. In 2006 and 2005, the Plan recorded dividend income of \$4,317,068 and \$3,980,853, respectively, from investments in common stock of the Company. These transactions qualify as exempt party-in-interest transactions.

Note 10. Reconciliation to Form 5500

Distributions payable to participants are not included within net assets available for benefits in the accompanying financial statements, however, they are recorded as liabilities in the Plan's Form 5500. For 2006, net assets available for benefits in the accompanying financial statements are at contract value, however, they are recorded at fair value in the Plan's Form 5500. The following table reconciles net assets available for benefits per the financial statements to the Plan's Form 5500 as filed by the Company:

	<u>2006</u>	<u>2005</u>
Net assets available for benefits per financial statements	<u>\$587,660,633</u>	<u>\$499,241,183</u>
Adjustments:		
Fair value to contract value for fully		
benefit-responsive investment contracts	<u>(435,698)</u>	<u>--</u>
Benefits requested not yet paid	<u>(227,307)</u>	<u>(59,982)</u>
Amounts reported per Form 5500	<u>\$586,997,628</u>	<u>\$499,181,201</u>

The following table reconciles the net increase in net assets available for benefits per the financial statements to the Form 5500 as filed by the Company for 2006:

	<u>Net increase</u>
Amounts reported per financial statements	<u>\$88,419,450</u>
Adjustments:	
Changes in adjustment from fair value to contract value	
for fully benefit-responsive investment contracts	<u>(435,698)</u>
Changes in benefits requested not yet paid	<u>(167,325)</u>
Amounts reported per Form 5500	<u>\$87,816,427</u>

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR)

AS OF DECEMBER 31, 2006

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost	Current Value
Registered Investment Companies	Evergreen Small Cap Value Fund, 427,150 shares	\$10,249,354	\$10,499,350
	American Funds Growth Fund of America, 2,716,565 shares	60,800,760	89,293,482
	PIMCO Total Return Fund, 3,024,733 shares	32,141,695	31,396,730
	Dodge & Cox Stock Fund, 367,953 shares	47,398,951	56,466,030
	Brown Capital Management Small Company Fund, 24,241 shares	700,661	790,268
	Dreyfus Premier Emerging Markets Fund, 1,006,811 shares	22,305,242	21,233,653
	American Funds EuroPacific Growth Fund, 913,251 shares	33,445,909	41,991,279
	Buffalo Small Cap Fund, 977,795 shares	27,205,186	26,341,808
Common/Collective Trusts	RiverSource Trust Money Market Fund I*, 6,619,693 shares	6,169,693	6,169,693
	RiverSource Trust Equity Index Fund III*, 1,959,874 shares	59,752,962	78,104,900
	RiverSource Trust Income Fund I*, 115,628 shares	7,998,593	8,292,283
	RiverSource Trust Investment Grade Bond Fund*, 649,552 shares	10,362,833	11,435,370
	RiverSource Trust Bond Index Fund II*, 582,261 shares	8,377,486	8,797,964
	State Street Global Advisors S&P Midcap Index Fund, 348,109 shares	10,767,912	13,047,467
Corporate Stocks: Common	Alliant Energy Corporation common stock*, 3,649,180 shares	90,603,322	137,820,283
Corporate Bonds	BOAA-06-9, 6.00%, 2/25/37, par value \$350,000	351,367	351,367
	COUNTRYWIDE ALT TR 2006-HY12, 6.20%, 8/25/36, par value \$206,546	207,933	208,694
	CWALT 2006-22CB-CA, 6.00%, 5/25/36, par value \$170,000	170,478	171,646
	CWALT 2006-31CBA16, 6.00%, 11/25/36, par value \$150,000	151,523	151,520
	CWALT 06-43CB 1A4, 6.00%, 2/25/37, par value \$175,000	176,613	175,978
	BACM 2005-4-A1, 4.43%, 7/10/45, par value \$119,940	119,942	117,949
	BACM 2005-6-A2, 5.19%, 9/10/47, par value \$175,000	175,882	174,694
	BOAA 2003-1-A1, 5.00%, 2/25/33, par value \$75,448	75,954	73,893
	BOAMS 2004-E 2A6, 4.11%, 6/25/34, par value \$150,000	148,781	147,083
	BACM 2006-2-AAB, 5.72%, 5/10/36, par value \$150,000	150,756	153,790
	BSCMS 2005-PWR9-A1, 4.50%, 9/11/42, par value \$186,923	187,390	183,856
	BSCMS 2005-T20-A2, 5.13%, 10/12/42, par value \$250,000	251,366	248,730
	CDC COMMERCIAL MTGE, 5.68%, 11/15/30, par value \$375,000	379,419	381,687
	CD 2006-CD2-AAB, 5.57%, 1/15/46, par value \$200,000	198,008	201,272
	CPS 2006-A-A3, 5.10%, 10/15/10, par value \$175,000	174,983	174,945
	CWALT 2005-6CB-1A1, 7.50%, 4/25/35, par value \$48,925	52,189	50,705
	CWL 2005-10-AF6, 4.91%, 12/25/35, par value \$20,000	19,999	19,485
	CWL 2005-17-1AF2, 5.36%, 12/25/35, par value \$125,000	124,998	124,297
	CWALT INC 2005-54CB, 5.50%, 11/25/35, par value \$59,139	60,100	59,161
	CWALT INC 2005-43, 5.50%, 11/25/35, par value \$63,223	64,132	63,247
	CWALT 2005-64CB-1A, 5.50%, 12/25/35, par value \$125,875	127,079	126,198
	CWALT 2005-85CB-2A, 5.50%, 2/25/36, par value \$151,775	151,645	151,710
	CWALT 2006-SCB, 6.00%, 1/25/36, par value \$262,564	263,610	262,547
	CWHL 2006-HYB1-1A1, 5.39%, 3/20/36, par value \$146,058	146,058	145,205
	CWHL 2006-HYB5-2A2, 5.95%, 9/20/36, par value \$276,426	276,232	278,143
	CGCMT 2005-C3-A1, 4.39%, 5/15/43, par value \$243,244	243,848	238,872
	ARMT 2005-12-2A1, 5.71%, 3/25/36, par value \$159,116	160,104	159,611
	CSFB 2003-CPN1-A2, 4.60%, 3/15/35, par value \$350,000	335,549	337,442
	CSMC 2006-C4-A3, 5.47%, 9/15/39, par value \$260,000	261,300	261,608
	CSFB 2005-C4-A1, 4.77%, 8/15/38, par value \$180,464	180,916	178,537
	ARMT_06-1-2A1, 5.97%, 6/25/36, par value \$210,203	211,615	210,241
	CSMC 2006-C1-A2, 5.44%, 2/15/39, par value \$175,000	175,875	176,406
	CSFB-05-12-SA1, 7.00%, 12/25/35, par value \$108,161	112,133	110,444

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR)

AS OF DECEMBER 31, 2006 (Continued)

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost	Current Value
Corporate Bonds (continued)	FRNK 2004-2-A4, 3.93%, 8/15/12, par value \$175,000	\$173,496	\$172,608
	GMACM 2004-HE2-A4, 3.65%, 10/25/33, par value \$120,000	115,539	115,660
	GECMC 2005-C3-A2, 4.85%, 7/10/45, par value \$350,000	351,746	345,868
	GCCFC 2003-C2 A3, 4.53%, 7/05/10, par value \$325,000	314,366	316,591
	GCCFC 2005-GG5-A1, 4.79%, 4/10/37, par value \$213,267	213,267	211,418
	HVMLT 2005-12-2A1A, 6.83%, 10/19/35, par value \$115,381	117,977	118,813
	HERTZ VEHICLE FINANCING, 4.93%, 2/15/10, par value \$150,000	149,991	149,661
	INDX 2005-AR25-A1, 5.88%, 12/25/35, par value \$84,536	85,398	84,665
	INDX 2006-AR13-1A1, 6.10%, 7/25/36, par value \$184,141	185,666	184,592
	INDYMAC LN TR 2006-AR1, 5.96%, 8/25/36, par value \$405,330	406,882	407,602
	JPMCC 2003-LN1-A1, 4.13%, 10/15/37, par value \$93,582	89,762	90,472
	JPMCC 2003-C1-A1, 4.27%, 1/12/37, par value \$172,042	170,275	167,723
	JPMCC 2005-CIBC12, 4.85%, 9/12/37, par value \$175,000	167,316	170,996
	JPMCC 2006-CB16, 5.55%, 5/12/45, par value \$275,000	276,367	278,949
	LBUBS 2005-C1-A1, 4.06%, 2/15/30, par value \$72,355	72,715	70,981
	LBART 2005-B-A3, 4.41%, 5/15/10, par value \$200,000	200,000	198,552
	MALT 2004-13 7A1, 6.50%, 11/25/34, par value \$277,445	278,572	278,633
	MLMT 2005-CIP1-A1, 4.63%, 5/12/10, par value \$179,681	179,681	177,280
	MLMT 2005-CK1-A1, 5.03%, 11/12/37, par value \$157,375	157,765	156,766
	MSC 2003-T11 A2, 4.34%, 6/13/41, par value \$250,000	243,213	244,372
	MSM 2004-2AR 3A, 5.05%, 2/25/34, par value \$121,739	124,668	120,164
	MSC 2006-HQ9-AAB, 5.68%, 7/20/44, par value \$200,000	201,091	204,159
	POPLR 2005-5-AF3, 5.09%, 11/25/35, par value \$175,000	174,999	173,223
	RAMC 2006-2-AF3, 5.69%, 8/25/36, par value \$135,000	135,000	135,612
	RAMC 2005-3-AF3, 4.77%, 10/25/35, par value \$125,000	124,553	123,457
	RAMC 2005-4-A3, 5.56%, 2/25/36, par value \$70,000	70,000	69,736
	RAMC 2006-1-AF3, 5.61%, 5/25/36, par value \$235,000	234,994	234,816
	RALI SER 2003-QS4 ABS, 5.50%, 9/25/33, par value \$18,719	19,244	18,667
	RASC 2004-KS8 A13, 3.84%, 9/25/34, par value \$82,113	82,099	81,099
	RALI 2006-QS3-1A10, 6.00%, 3/25/36, par value \$107,369	108,090	108,610
	SQALT 2006-1-A2, 6.12%, 2/25/36, par value \$94,991	95,696	96,245
	SARM 2005-15-4A1, 5.52%, 7/25/35, par value \$182,280	183,954	180,628
	SARM-06-5:4A1 CMO FLOAT% 7/25/36, 5.97%, 6/25/36, par value \$139,091	138,222	139,477
	WAMU MTG PASS-THROUGH CTFS 2005, 5.30%, 12/25/35, par value \$113,963	112,476	113,042
	WBCMT 2003-C8-A2, 3.89%, 11/15/35, par value \$150,000	150,745	146,124
	WBCMT 2005-C18-A2, 4.66%, 4/15/42, par value \$175,000	170,912	171,664
	WBCMT 2005-C18-A4, 4.93%, 4/15/42, par value \$200,000	191,758	194,653
	WBCMT 2005-C19-A1, 4.17%, 6/15/42, par value \$136,888	136,884	134,101
	WFMBS 2005-5-3PT3, 5.50%, 5/25/35, par value \$267,702	267,080	263,017
	WFMBS 2006-AR6-2A2, 5.08%, 4/25/36, par value \$185,430	182,569	183,042
	WELLS FARGO MTG BACKED SECS 2006, 5.11%, 3/25/36, par value \$142,342	140,190	140,682
	CS FIRST BOSTON MTGE SECURITIES, 5.10%, 8/15/38, par value \$250,000	249,793	248,483
	WFMBS, 5.00%, 10/25/35, par value \$315,472	305,845	303,346

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR)

AS OF DECEMBER 31, 2006 (Continued)

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost	Current Value
Government and Agency Obligations	FNMA 30YR TBA, 5.00%, 1/01/35, par value \$400,000	\$391,672	\$386,125
	FNMA 15YR TBA, 5.50%, 1/01/15, par value \$350,000	351,531	349,891
	FNMA TBA, 5.50%, 1/01/31, par value \$1,000,000	995,906	988,125
	FNMA 30YR TBA, 6.00%, 9/01/28, par value \$375,000	379,250	377,460
	FNMA 30YR TBA, 6.50%, 1/01/30, par value \$375,000	382,676	382,031
	FGLMC GOLD 30 YR TBA, 5.50%, 1/01/37, par value \$375,000	373,403	370,781
	FHLMC TBA, 6.00%, 1/01/33, par value \$1,100,000	1,113,063	1,107,909
	FHLMC GOLD #E91326, 6.50%, 9/01/17, par value \$58,791	62,282	60,149
	FHLMC GOLD #E97247, 5.00%, 6/01/18, par value \$90,446	92,368	89,141
	FGOLD 10 YR #G12100, 5.00%, 11/01/13, par value \$73,448	71,979	72,603
	FHLMC #1G1067, 5.70%, 7/01/36, par value \$244,966	243,942	246,086
	FHLMC (NON GOLD) ARM #1G2450, 5.93%, 8/01/36, par value \$319,236	321,518	322,697
	FHLMC #1G2496 ARM, 6.21%, 9/01/36, par value \$123,094	124,830	124,164
	FHLMC GOLD #C66932, 6.00%, 5/01/32, par value \$49,000	49,107	49,478
	FED HOME LN BANK, 4.63%, 1/18/08, par value \$30,000	29,964	29,834
	FHLB, 5.25%, 2/13/08, par value \$25,000	24,989	25,013
	FHLMC REF NOTE, 5.13%, 10/15/08, par value \$85,000	87,547	85,109
	FHLMC, 3.88%, 6/15/08, par value \$45,000	43,616	44,234
	FNMA BENCHMARK, 4.50%, 10/15/08, par value \$85,000	84,867	84,242
	FNMA 15YR #252260, 6.00%, 3/01/10, par value \$278,053	276,706	282,396
	FNMA #254187, 5.00%, 12/01/08, par value \$156,138	155,284	155,481
	FNMA #254291, 7.00%, 4/01/17, par value \$67,501	71,994	69,388
	FNMA #254757, 5.00%, 3/31/13, par value \$78,031	81,542	77,015
	FNMA #254793, 5.00%, 7/01/33, par value \$121,710	119,922	117,734
	FNMA #357324, 5.00%, 1/01/33, par value \$293,246	282,341	283,763
	FNMA #387608, 4.80%, 9/01/15, par value \$220,384	212,008	214,963
	FNMA #462236, 5.44%, 7/01/16, par value \$124,606	127,366	125,884
	FNMA #462237, 5.52%, 7/01/16, par value \$149,550	153,703	151,904
	FNMA #535170, 5.50%, 9/01/14, par value \$79,436	81,968	79,775
	FNMA #545701, 7.00%, 7/01/12, par value \$41,789	44,662	42,014
	FNMA #545864, 5.50%, 8/01/17, par value \$140,757	142,835	141,245
	FNMA #555528, 6.00%, 4/01/33, par value \$264,204	266,475	266,615
	FNMA #555591, 5.50%, 7/01/33, par value \$477,795	476,077	472,924
	FNMA #555740, 4.50%, 9/01/18, par value \$185,143	181,383	178,982
	FNMA #640996, 7.50%, 5/01/32, par value \$49,161	52,602	51,100
	FNMA #646147, 7.00%, 6/01/32, par value \$144,573	151,485	149,517
	FNMA #648349, 6.00%, 6/01/17, par value \$55,320	57,862	56,246
	FNMA #677377, 5.50%, 1/01/33, par value \$313,055	309,925	309,928
	FHLMC 2492-B, 5.50%, 5/15/13, par value \$266,406	278,103	265,977
	FNMA #200394, 5.50%, 7/25/23, par value \$167,804	175,172	167,171
	FHLMC 2617 HD, 7.00%, 6/15/16, par value \$78,099	84,835	80,469
	FNMA 2003-133 GB, 8.00%, 12/25/26, par value \$39,873	43,692	42,020
	FHLMC 2641, 6.50%, 1/15/18, par value \$82,000	87,503	84,158
	FNMA 2004-W3 A15, 5.00%, 5/25/34, par value \$85,745	89,725	85,087
	FNMA 2004-60 PA, 5.50%, 4/25/34, par value \$119,532	123,482	119,457

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR)

AS OF DECEMBER 31, 2006 (Continued)

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost	Current Value
Government and Agency Obligations (continued)	FHLMC 2657 NT, 5.00%, 1/15/16, par value \$89,245	\$92,885	\$88,780
	FHLMC 2672 NT, 5.00%, 2/15/16, par value \$115,702	120,497	115,059
	FHLMC 2662 DB, 5.00%, 2/15/16, par value \$84,800	88,219	84,349
	FHLMC 2750 DB, 4.50%, 5/15/15, par value \$114,720	117,462	113,447
	FHLMC 2843-BA, 5.00%, 1/15/18, par value \$89,383	91,593	88,426
	FHLMC 2907-AG, 4.50%, 3/15/19, par value \$89,629	89,601	87,325
	FNMA #685433, 6.50%, 3/01/33, par value \$90,026	95,069	92,222
	FNMA #704265, 5.50%, 5/01/33, par value \$343,226	336,402	339,728
	FNMA #705304, 4.92%, 6/01/33, par value \$133,277	135,224	130,763
	FEDERAL NATL MTG ASSN GTD MTG, 6.00%, 12/01/33, par value \$463,189	462,320	467,094
	FNMA #725090, 4.82%, 11/01/33, par value \$118,058	117,431	114,400
	FNMA #725425, 5.50%, 4/01/34, par value \$543,860	532,572	538,352
	FNMA ARM #725737, 4.53%, 8/01/34, par value \$82,172	81,183	81,649
	FNMA #725773, 5.50%, 9/01/34, par value \$321,984	312,073	318,532
	FNMA #725815, 6.00%, 12/01/33, par value \$158,691	160,105	160,029
	FNMA #728599, 5.00%, 7/01/33, par value \$702,427	686,732	679,478
	FNMA #735057, 4.50%, 1/01/19, par value \$159,929	153,782	154,659
	FNMA #735935, 5.00%, 12/01/18, par value \$291,055	286,189	287,036
	FNMA #741897, 5.00%, 10/01/33, par value \$91,338	88,198	88,353
	FNMA #745563, 5.50%, 8/01/34, par value \$482,830	472,173	477,908
	FNMA #745727, 5.26%, 5/01/16, par value \$248,751	246,779	248,306
	FNMA #745802, 6.00%, 7/01/36, par value \$364,011	365,831	366,475
	FNMA #763798, 5.50%, 3/01/34, par value \$244,133	247,185	241,729
	FNMA #764082, 4.78%, 1/01/34, par value \$88,180	89,627	86,969
	FNMA ARM #799769, 5.05%, 11/01/34, par value \$100,630	102,642	99,931
	FNMA ARM #801344, 5.07%, 10/01/34, par value \$104,480	106,374	104,404
	FNMA #809534, 5.09%, 2/01/35, par value \$87,822	88,999	87,574
	FNMA ARM #826908, 5.12%, 8/01/35, par value \$163,863	163,453	161,464
	FNMA #844705, 5.76%, 12/01/35, par value \$129,135	130,386	129,336
	FNMA ARM #845070, 5.09%, 12/01/35, par value \$180,261	180,359	179,331
	FNMA ARM #849082, 5.84%, 1/01/36, par value \$87,807	88,888	88,342
	FNMA ARM #866097, 6.17%, 2/01/36, par value \$166,596	169,043	169,513
	FNMA ARM #872753, 5.92%, 6/01/36, par value \$95,854	96,348	96,442
	FNMA #878661, 5.50%, 2/01/36, par value \$456,684	438,417	449,322
	FNMA #881629, 5.50%, 2/01/36, par value \$442,416	424,927	435,284
	FNMA #883267, 6.50%, 7/01/36, par value \$171,092	173,818	175,494
	FNMA ARM #886461, 6.19%, 8/01/36, par value \$93,297	94,128	94,483
	FNMA #886762, 7.00%, 9/01/36, par value \$337,625	347,701	348,097
	FNMA ARM #887096, 5.81%, 7/01/36, par value \$215,066	215,663	217,716
	FNMA ARM #900197, 5.97%, 10/01/36, par value \$124,972	126,364	125,751
	GNMA II #003501, 6.00%, 1/20/34, par value \$452,770	446,544	458,222
	GNMA II #003920, 6.00%, 11/20/36, par value \$249,611	253,511	252,467
	UST INFLATION INDEX, 3.38%, 1/15/07, par value \$1,200,000	1,535,837	1,524,919
	U.S. TREASURY NOTE, 2.25%, 2/15/07, par value \$620,000	609,934	617,917
	U.S. T-BOND, 3.38%, 2/15/08, par value \$70,000	68,179	68,778
	U.S. TREASURY NOTE, 4.25%, 11/30/07, par value \$140,000	139,042	139,037
	UST NOTE/BOND, 4.88%, 5/31/08, par value \$40,000	39,903	39,981
	U.S. TREASURY NOTE, 4.88%, 10/31/08, par value \$530,000	532,010	530,248
	U.S. TREASURY NOTE, 4.63%, 10/31/11, par value \$40,000	40,241	39,855
	U.S. TREASURY NOTE, 4.63%, 11/15/16, par value \$440,000	444,594	437,113
	U.S. TREASURY NOTE, 4.50%, 11/30/11, par value \$140,000	140,875	138,753
	FNMA 2004-W10 A23, 5.00%, 8/25/34, par value \$125,000	128,770	124,109

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (HELD AT END OF YEAR)

AS OF DECEMBER 31, 2006 (Continued)

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost	Current Value
Investment Contracts	Monumental Life Insurance Company, 5.24%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	\$-	\$-
	Bank of America NA, 5.39%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	24,503
	Rabobank International, 5.29%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	23,585
	IXIS Capital Markets, 4.98%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	42,115
	JP Morgan Chase & Co., 5.17%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	14,044
	UBS Warburg, 5.28%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	26,379
	State Street Bank and Trust Company, 5.03%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	27,671
	AIG Financial Products Corp., 4.72%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	30,530
	JP Morgan Chase II, 5.10%, 12/31/50 Synthetic Guaranteed Investment Contract Wrapper	-	-
Participant-Directed Brokerage Accounts	Self-Managed Brokerage Accounts	359,209	381,185
Participant Promissory Notes*	Maximum allowable loan - \$50,000 Various interest rates - 5.0% to 10.5% Primarily maturing within 5 years	- - -	9,305,638
		<u>\$464,227,645</u>	<u>\$587,004,658</u>

* Represents party known to be a party-in-interest to the Alliant Energy Corporation 401(k) Savings Plan.

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV, LINE 4i - SCHEDULE OF ASSETS (ACQUIRED AND DISPOSED OF WITHIN YEAR)

FOR THE YEAR ENDED DECEMBER 31, 2006

Identity of issue, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost of Acquisitions	Proceeds of Dispositions
Corporate Bonds	ARMT 2006 - 2 - CB1, 6.24%, 5/25/36	\$125,541	\$126,641
	COUNTRYWIDE ALT TR, 6.20%, 8/25/36	18,578	18,454
	CWALT 2005 - 64CB - 1A, 5.50%, 12/25/35	19,137	18,956
	CWALT 2005 - 85CB - 2A, 5.50%, 2/25/36	20,431	20,449
	CWALT 2006 - 2CB, 6.00%, 1/25/36	37,585	37,436
	CWHL 2006 - HYB1 - 1A1, 5.39%, 3/20/36	28,942	28,942
	CWHL 2006 - HYB5 - 2A2, 5.95%, 9/20/36	22,575	22,591
	CCCIT 06 - B2 - B2, 5.15%, 3/07/11	399,716	393,891
	ARMT 2005 - 12 - 2A1, 5.71%, 3/25/36	36,503	36,278
	ARMT 06 - 1 - 2A1, 5.97%, 6/25/36	40,065	39,797
	INDX 2006 - AR13 - 1A1, 6.10%, 7/25/36	15,990	15,859
	INDYMAC LN TR 2006, 5.96%, 8/25/36	19,745	19,670
	JPMCC 2003 - LN1 - A1, 4.13%, 10/15/37	15,011	15,649
	MALT 2004 - 13 7A1, 6.50%, 11/25/34	55,230	55,007
	MLMT 2006 - C1 - A4, 5.84%, 5/12/39	224,536	229,474
	RALI 2006 - QS3 - 1A10, 6.00%, 3/25/36	11,303	11,228
	SQALT 2006 - 1 - A2, 6.12%, 2/25/36	26,819	26,622
	SARM 06 - 5 - 4A1 CMO, 5.97%, 6/25/36	10,841	10,909
	TBW 2006 - 2 - 6A1, 7.00%, 7/25/36	152,748	152,011
	WAMU MTG PASS-THRO, 5.30%, 12/25/35	3,477	3,523
	WBCMT 2006 - C25 - APB, 5.95%, 5/15/43	200,988	203,773
	WFMBS 2006 - AR6 - 2A2, 5.08%, 4/25/36	14,345	14,570
	WELLS FARGO MTG BA, 5.11%, 3/25/36	2,119	2,152

ALLIANT ENERGY CORPORATION

401(k) SAVINGS PLAN

FORM 5500, SCHEDULE H, PART IV

LINE 4j - SCHEDULE OF REPORTABLE TRANSACTIONS

FOR THE YEAR ENDED DECEMBER 31, 2006

<u>Identity of Party Involved and Description of Assets</u>	<u>Total Number of Purchases</u>	<u>Total Value of Purchases (1)</u>	<u>Total Number of Sales</u>	<u>Net Selling Price (1)</u>	<u>Adjusted Cost of Assets Sold</u>	<u>Net Gain (Loss)</u>
Single Transaction Exceeds 5% of Value:						
None.						
Series of Transactions With Same Broker Exceeds 5% of Value:						
None.						
Series of Transactions In Same Security Exceeds 5% of Value:						
RiverSource Trust Money Market Fund I*	466	\$72,644,810	449	\$73,339,694	\$73,339,694	\$ -
Single Transaction With One Broker Exceeds 5% of Value:						
None.						

(1) The purchase/selling price was equal to the fair value on the date of purchase/sale.

* Represents party known to be a party-in-interest to the Alliant Energy 401(k) Savings Plan.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Total Compensation Committee, which administers the Plan, has duly caused this Annual Report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 28th day of June 2007.

ALLIANT ENERGY CORPORATION 401(k) SAVINGS PLAN

/s/ Christopher J. Lindell
Christopher J. Lindell

The foregoing person is the Vice President - Shared Services of Alliant Energy Corporation and Alliant Energy Corporate Services, Inc., and the Chairperson of the Alliant Energy Corporation Total Compensation Committee.

EXHIBIT INDEX TO ANNUAL REPORT ON FORM 11-K

**ALLIANT ENERGY CORPORATION
401(k) SAVINGS PLAN**

FOR THE YEAR ENDED DECEMBER 31, 2006

Exhibit No.

23

Exhibit

Consent of Independent Registered Public Accounting Firm

Page Number in
Sequentially Numbered
Form 11-K

22

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-117654 of Alliant Energy Corporation on Form S-8 of our report dated June 22, 2007, appearing in this Annual Report on Form 11-K of the Alliant Energy Corporation 401(k) Savings Plan for the year ended December 31, 2006.

/s/ Deloitte & Touche LLP

Milwaukee, Wisconsin
June 28, 2007